AF/2151

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PATENT APPLICATION

ATTORNEY DOCKET NO. 200302044-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Theodore F. Emerson et al.

Confirmation No.: 6279

Application No.: 10/037,501

Examiner: Patel, Dhairya A.

Filing Date: January 4, 2002

Group Art Unit: 2151

Title: METHOD AND APPARATUS FOR EMULATING AN OS-SUPPORTED COMMUNICATION DEVICE TO ENABLE REMOTE DEBUGGING

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TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on October 30, 2006.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $120	☐ 2nd Month $450	☐ 3rd Month $1020	☐ 4th Month $1590

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

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Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Theodore F. Emerson et al.	§	Group Art Unit:	2151
Serial No.: 10/037,501	§		
Filed: January 4, 2003	§	Examiner:	Patel, Dhairy A.
For: Method and Apparatus for Emulating An OS-Supported Communication Device to Enable Remote Debugging	§	Atty Docket:	200302044-1 COMP:0221

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December 21, 2006 — Helen Tinsley
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APPEAL BRIEF PURSUANT TO 37 C.F.R. §§ 41.31 AND 41.37

This Appeal Brief is being filed in furtherance to the Notice of Appeal mailed on October 27, 2006, and received by the Patent Office on October 30, 2006.

1. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, which is the Assignee of the above-referenced application by virtue of an Assignment recorded in the United States Patent and Trademark Office at reel 014628, frame 0103. The date of the Assignment is May 12, 2004. As the real party in interest, Hewlett-Packard Development Company will be directly affected by the Board's decision in the pending appeal.

2. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellants' legal representative in this Appeal.

3. STATUS OF CLAIMS

Claims 1-9 and 11-23 are currently pending, are currently under final rejection. Thus, claims 1-9 and 11-23 are the subject of this Appeal.

4. STATUS OF AMENDMENTS

There are no outstanding amendments to be considered by the Board.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates generally "to the field of monitoring and correcting failure conditions in networked computer systems and, more particularly, to remote server management." Specification, page 1, lines 8, 9. The Application

contains three independent claims, namely, claims 1, 9 and 13, all of which are the subject of this Appeal. The subject matter of these claims is summarized below.

With regard to the aspect of the invention set forth in independent claim 1, discussions of the recited features of claim 1 can be found at least in the passages referenced below. By way of example, an embodiment in accordance with claim 1 provides a remote server management controller 200 (FIG. 2), comprising an external communication interface such as a PCI bus 314. According to the specification, "[p]referably, the PCI bus 314, which serves as the main communication interface between the managed server 20 (FIG. 1) and the remote server management controller 200, may be configured as a 32-bit, 33 MHz PCI master/slave interface." Specification, page 16, lines 18-20. The remote server management controller further comprises an input/output processor (IOP) 302 adapted to receive data from the external communication interface, and transmit data corresponding to the data received from the external communication interface to an operating system (OS) of a managed server. The operation of the IOP is explained in the specification in part, as follows:

> Under control of the IOP 302, some of the IRC registers 504 may function as a virtual communication device ("VCD") that may be used to intercept UART communications or communications from other sources. Data intercepted through the VCD may be altered by the IOP and/or redirected to other outputs of the remote server management controller 200. For example, data intercepted by the VCD may be redirected to a remote user via the Ethernet interface 322.
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> Specification, page 21, lines 17-22.

Further, the remote server management controller comprises a virtual communication device (VCD) interface (e.g., 504, 600) adapted to intercept data received from the OS, the VCD interface comprises a pre-defined standard communication interface. As set forth in the specification:

> The VCD logic enables the remote server management controller 200 to communicate with specific OS features, such as the Emergency Management Services ("EMS") facility that is implemented in Windows XP. These OS specific features are designed to communicate with a physical UART or USB device. The remote management controller 200 emulates these physical devices so that the OS features can be seamlessly extended to remote users.
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> Specification, page 22, lines 1-8.

Thus, the data received from the OS is seamlessly redirected from an intended communication interface without arbitration to the remote user via the external communication interface.

With regard to the aspect of the invention set forth in independent claim 9, discussions of the recited features of claim 9 can be found at least in the passages referenced below. By way of example, an embodiment in accordance with claim 9 provides a remote server management controller 200 comprising an input/output processor (IOP) 302 adapted to monitor interrupt data transmitted from a super I/O (SIO) 900 to a southbridge, to alter the interrupt data transmitted from the SIO based on input received from an external user via an external communication interface and to transmit the altered interrupt data to a managed server. This process is described in the specification, as follows:

> When connected in this manner, the IOP 302 may monitor the serial interrupt data stream that is passed from the SIO 902 to the southbridge 900. As long as the IOP does not assert its SIRQEN# control signal, the serial interrupt data continues to flow from the SIO 902 through the quickswitch 904 to the southbridge 900. If the IOP, asserts the SIRQEN# control signal, the output of the quickswitch 904 is placed into a high impedence state ("tristated"). This allows the IOP 302 to transmit its own serial interrupt data from its SIRQOUT pin to the southbridge 900.
>
> This technique allows the remote server management controller 200 (FIG. 2) to monitor and/or redirect interrupts such as IRQ3, IRQ4, and/or IRQ5 from the SlO 904 to the lOP 302 (FIG. 2). The IOP 302 may use this capability of the remote server management controller 200 to interrupt the managed server 20 by inserting its own internally generated interrupt into the serial interrupt data transmitted from the SIO 902 to the southbridge 900.
>
> Specification, page 33, lines 3-14.

The remote server management controller further comprises a virtual communication device (VCD) 504, 600 that comprises a predefined standard communication interface, the VCD being adapted to intercept responsive data intended to be transmitted to the SIO in response to the altered interrupt data, the responsive data being in a format that is not compatible with the first communication protocol. As set forth in the specification:

> Those of ordinary skill in the field will appreciate that functionality described with respect to the USB interface 326 in FIG. 4 may be obtained with other communications interfaces as well. For example, the remote server management controller 200 may incorporate an interface that is compatible with the IEEE 1394 or IEEE 1394b standards in addition to or instead of a USB

> interface. If an interface for either IEEE 1394 or IEEE 1394b is incorporated into the remote server management controller 200, that interface may be adapted to redirect communications and emulate devices compatible with that interface.
>
> Specification, page 28, line 17 – page 29, line 1.

The VCD 504, 600 is further adapted to prevent the responsive data from reaching the SIO, format the responsive data for transmission, and redirect without arbitration the formatted data to the external communication interface. As set forth in the specification:

> In many newly developed servers, legacy ISA interrupts are no longer supported. Instead, interrupts are transmitted serially to the southbridge of the server using one signal with a defined protocol. Usually an SIO is the source of these interrupts, but other devices can generate interrupts as well. In order for a keyboard, mouse, or serial port to be emulated or shared between the remote server management controller 200 and the managed server 20, the respective interrupts from those devices may be intercepted by the remote server management controller 200. In order to mask or generate a device interrupt without interference from the respective device or the device driver, the present embodiment provides logic to allow any interrupt in the serial stream to be blocked or artificially generated by another device such as the VCD 600 under control of the IOP 302.
>
> Specification, page 31, lines 8-15.

No arbitration scheme is discussed with respect to the redirection of data in accordance with an exemplary embodiment of the invention as set forth in claim 9.

With regard to the aspect of the invention set forth in independent claim 13, discussions of the recited features of claim 13 can be found at least in the passages referenced below. By way of example, an embodiment in accordance with claim 13 provides a method of remotely retrieving data from an operating system (OS). The

method comprises receiving a request for OS information from a remote user. As set forth in the specification:

> At 802, a remote user initiates an out-of-band communication with the remote server management controller 200 (FIG. 2) via the Ethernet interface 322 (FIG. 2). As part of this session, the user desires to obtain information about the status of the OS of the managed server 20 (FIG. 1). The user may issue a query to be passed on to the OS through a management facility that is supported by the OS.

Specification, page 29, lines 14-18. See also FIG. 5.

The request is then transmitted to the OS via a virtual communication device (VCD) 504, 600 interface comprising a pre-defined standard communication interface. The specification states that "[t]he user's query is received by the IOP 302 at 804 and directed to the VCD or USB interface 326 at 806, depending on which interface is employed by the OS of the managed server 20 for management communications." Specification, page 29, lines 20-22.

Further, the method comprises receiving (e.g., 804), via the VCD (e.g., 504, 600) interface, data responsive to the act of transmitting the request to the OS, the data being intended for a specific communication interface. As set forth in the specification:

> The VCD 600 or USB interface 326 passes the user's request to the OS via the OS-supported management facility at 808 and receives the response back from the OS. The VCD 600 or USB interface 326 passes the response of the OS back to the IOP 302 at 810 and the IOP 302 transmits the response back to the user via the Ethernet interface 322 at 812.

Specification, page 29, line 22 – page 30, line 4.

No arbitration scheme is discussed with respect to the redirection of data in accordance with an exemplary embodiment of the invention as set forth in claim 13.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's first ground of rejection in which the Examiner rejected claims 1, 9 and 13 under 35 U.S.C. § 112, first paragraph.

Second Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's second ground of rejection in which the Examiner rejected claims 1, 2, 4, 8, 9, 11-14, and 17-20 under 35 U.S.C. § 102(b) as being anticipated by Krontz et al. (U.S. Patent No. 5,790,895, (hereinafter "the Krontz reference").

Third Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's third ground of rejection in which the Examiner rejected claims 3, 5, 15, and 21-23 as being unpatentable over the Krontz reference in view of Britt Jr., et al. (U.S. Patent Publication No. 2002/0032785, hereinafter "the Britt reference").

Fourth Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's fourth ground of rejection in which the Examiner rejected claims 6, 7 and 16 as being

unpatentable over the Krontz reference in view of Ito et al. (U.S. Patent No. 6,671,343, hereinafter "the Ito reference").

7. ARGUMENT

As discussed in detail below, the Examiner has improperly rejected the pending claims. Further, the Examiner has misapplied long-standing and binding legal precedents and principles in rejecting the claims under Sections 112, 102 and 103. Accordingly, Appellants respectfully request full and favorable consideration by the Board, as Appellants respectfully assert that claims 1-9 and 11-23 are currently in condition for allowance.

A. Ground of Rejection No. 1:

The Examiner rejected independent claims 1, 9 and 13 under 35 U.S.C. § 112, first paragraph. Specifically, the Examiner stated:

> As per claims 1, 9, 13, it states **"to redirect without arbitration** the data received from the OS to the remote user". Nowhere in the specification does it state "to redirect without arbitration". Therefore the claim language is not supported by the specification.
>
> Final Office Action, page 2 (Emphasis in original).

Appellants respectfully traverse this rejection.

1. Legal Precedent

First, regarding the written description requirement, the initial burden of proof regarding the sufficiency of the written description falls on the Examiner. Accordingly, the Examiner must present evidence or reasons why persons skilled in the art would not recognize a description of the claimed subject matter in the

Appellants' disclosure. *In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q. 90, 96 (CCPA 1976). The Examiner is also reminded that the written description requirement does not require the claims to recite the same terminology used in the disclosure. The patentee may be his own lexicographer. *Ellipse Corp. v. Ford Motor Co.*, 171 U.S.P.Q. 513 (7th Cir. 1971), aff'd. 613 F.2d 775 (7th Cir. 1979), cert. denied, 446 U.S. 939 (1980). Moreover, any information contained in any part of the application as filed, including the specification, claims and drawings, may be added to other portions of the application without introducing new matter. Accordingly, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the specification may be amended to include the claimed subject matter. *In re Benno*, 768 F.2d 1340, 226 U.S.P.Q. 683 (Fed. Cir. 1985).

Second, regarding the enablement requirement, the Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. *In re Wright*, 999 F.2d 1557, 1562, 27 U.S.P.Q.2d 1510, 1513 (Fed. Cir. 1993). Under the test for enablement set forth by the Supreme Court, a rejection for lack of enablement is proper only when the experimentation needed to practice the invention is undue or unreasonable. *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 U.S.P.Q.2d 1331, 1332 (Fed. Cir. 1991). The undue experimentation test essentially evaluates whether one of reasonable skill in the art can make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.

U.S. v. Telectronics, Inc., 857 F.2d 778, 785, 8 U.S.P.Q.2d 1217, 1223 (Fed. Cir. 1988). As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of section 112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, 166 U.S.P.Q. 18, 24 (C.C.P.A. 1970).

Independent claims 1, 9 and 13 recite a method and system in which a remote server management controller employs a virtual communication device (VCD) interface that is adapted to intercept data received from an operating system (OS). The virtual communication device (VCD) is further adapted to "redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface."

Appellants note that the specification clearly states that data intercepted through the VCD may be "redirected to other outputs of the remote server management controller 200. For example, data intercepted by the VCD may be redirected to a remote user via the Ethernet interface 322." Specification, page 21, lines 19-22. As further disclosed in the specification:

> [T]he VCD 600 or USB interface 326 passes the user's request to the OS via the OS-supported management facility at 808 and receives the response back from the OS. The VCD 600 or USB interface 326 passes the response of the OS back to the IOP 302 at 810 and the IOP 302 transmits the response back to the user via the Ethernet interface 322 at 812.
>
> Specification, page 29, line 22 - page 30, line 4.

Hence, redirection of data by the VCD is done with no intervening or intermediate steps as those implemented by an arbitrator. Further, there is nothing in the Appellants' disclosure to suggest that redirection of data by the VCD is done with arbitration. Therefore, it is unforeseeable that one skilled in the art having the benefit of the Appellants' disclosure would conclude that redirection of data is done with arbitration. Moreover, the recited limitation "without arbitration" is a negative limitation and as such does not require literal basis in the specification. As clearly stated by the M.P.E.P:

> [A] lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993).
>
> M.P.E.P. § 2173.05(i).

In the present case, Appellants respectfully assert that the fact that the specification does not literally contain the claim recitation "without arbitration" is not an indication that one of ordinary skill in the art would be required to engage in undue experimentation to conclude that data redirection is performed without the unmentioned act of arbitration. Indeed, the lack of discussion of arbitration in the specification supports Appellants' contention that arbitration was not contemplated as a part of the redirection of data in accordance with the Appellants' invention. Accordingly, Appellants respectfully request the Board to reverse the rejection of claims 1, 9 and 13 under 35 U.S.C. § 112, first paragraph.

B. **Ground of Rejection No. 2:**

The Examiner rejected claims 1-2, 4, 8, 9, 11-14, 17-20 under 35 U.S.C. § 102(b) as being unpatentable over the Krontz reference. Appellants respectfully traverse this rejection.

1. **Judicial precedent has clearly established a legal standard for a *prima facie* anticipation rejection.**

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). Thus, for a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Appellants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

2. **The Examiner's rejection of independent claims 1, 9, and 13 is improper because the rejection fails to establish a *prima facie* case of anticipation.**

Independent claim 1 recites:

> A remote server management controller, comprising:
> an external communication interface adapted to receive data from a remote user;
> an input/output processor (IOP) adapted to:
> receive data from the external communication interface; and

transmit data corresponding to the data received from the external communication interface to an operating system (OS) of a managed server; and

a virtual communication device (VCD) interface adapted to:

intercept data received from the OS, the VCD interface comprising a pre-defined standard communication interface, the data received from the OS being intended for a specific communication interface, and to redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface.

Independent claim 9 recites:

A remote server management controller, comprising:

an input/output processor (IOP) adapted to monitor interrupt data transmitted from a super I/O (SIO) to a southbridge, to alter the interrupt data transmitted from the SIO based on input received from an external user via an external communication interface and to transmit the altered interrupt data to a managed server; and

a virtual communication device (VCD) that comprises a predefined standard communication interface, the VCD being adapted to:

intercept responsive data intended to be transmitted to the SIO in response to the altered interrupt data, the responsive data being in a format that is not compatible with the first communication protocol; and

prevent the responsive data from reaching the SIO;

format the responsive data for transmission; and

redirect without arbitration the formatted data to the external communication interface.

Independent claim 13 recites:

A method of remotely retrieving data from an operating system (OS), the method comprising the acts of:

receiving a request for OS information from a remote user;

transmitting the request for OS information to the OS via a virtual communication device (VCD) interface; comprising a pre-defined standard communication interface;

receiving, via the VCD interface, data responsive to the act of transmitting the request to the OS, the data being intended for a specific communication interface;

formatting the responsive data for transmission; and

redirecting without arbitration the formatted data to the external communication interface.

The following rejection of claim 1 is exemplary of the rejection of claims 9 and 13, as well:

> As per claim 1, Krontz teaches a remote server management controller, comprising:
>
> -an external communication interface (Fig. 1A element 149) adapted to receive from a remote user (column 12 lines 17-36, lines 54-64);
>
> The reference teaches the modem (external communication interface) receives the incoming call and examines the first few characters from the incoming call (receiving data) from the remote user using certain communication protocols (first communication protocol);
>
> -an input/output processor (IOP) adapted to:
>
> -receive data from external communication interface (column 10 lines 46-64); and
>
> The reference teaches the input/output processor (IOP) receives data from the modem (external communication interface).
>
> -transmit data corresponding to the data received from the external communication interface to an operating system (0s) of a managed server (column 10 lines 55-67)(column I I lines 1-9, lines 26-45)(column 12 lines 17-36,54-64); and
>
> The reference teaches sending the resource data to the operating system of the server and the Virtual communication port of the device intercepts the data. The data is sent to the remote computer (remote user) via the modem (external communication port) to the operating system.

-a virtual communication device (VCD) (Fig. 2 element 200) interface adapted to (column 11 lines 40-44):

-intercept data received from the OS, the VCD interface comprising a pre-defined standard communication interface, the data received from the OS being intended for specific communication interface (column 10 lines 55-67)(column 11 lines 1-9, lines 26-45), and to redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface (column 10 lines 55-67)(column 11 lines 1-9, lines 26-45)(column 12 lines 17-36) (column 12 lines 49-67);

The reference teaches sending the resource data to the operating system of the server and the Virtual communication port of the device intercepts the data. The data is directly received by the operating system without the arbitrator and the data is directly to the remote computer (remote user) from the operating system via the modem (external communication port). The reference also teaches the virtual communication device comprises pre-defined standard communication interface as COMl through COM4 (column 10 lines 55-67)(column 11 lines 1-9, lines 26-31).

Final Office Action, pp. 3-4.

The rejection of independent claims 1, 9 and 13 under Section 102 based on Krontz is improper because Krontz does not disclose each and every element recited by those claims. For example, independent claim 1 recites a virtual communication device (VCD) interface adapted to intercept data received from an operating system (OS) and "to redirect *without arbitration* the data received from the OS to the remote user." (Emphasis added). Similarly, independent claims 9 and 13 recite a VCD adapted to "redirect *without arbitration* the formatted data to the external communication interface." (Emphasis added).

In contrast to the claimed subject matter, Krontz discloses "an apparatus which shares a resource ... between [computer applications] ...." Krontz, col. 2, lines 43-45. Enabling sharing a resource, such as a modem, Krontz further discloses an arbitrator 220 which supervises the sharing of the modem so that "applications executing in the operating system mode is prevented from interfering with the remote console's exclusive use of the modem." Krontz, col. 10, lines 34-44. As further disclosed by Krontz "the SMI handler for the virtual communication port 200 acts as an arbitrator to decide when access to the virtual communication port 200 should be forwarded to the UART device 145." Krontz, col. 10, lines 51-54; *See* also Fig. 2. That is, before data can be redirected to the external communication interface 145 from the virtual communication port 200 the arbitrator 220 decides on allocating these devices among various computer applications requesting access to these resources. Further, a series of conditions provided by the arbitrator 220 may determine when the external communication interface 145 may access the virtual communication port 200. Krontz, col. 11, lines 52-65.

Because the technique disclosed by the Krontz reference is aimed at sharing a resource among multiple computer applications, employing an arbitrator for allocating access to the virtual communication port 200 and forwarding such an access to the external communication port 145 is necessary. In other words, without employing such arbitration means, the system disclosed by Krontz would not be functional. Therefore, Krontz cannot anticipate the claimed redirection of data "*without arbitration*... from the OS to the remote user," as recited by independent claim 1. Nor can Krontz anticipate the claimed VCD adapted to "redirect *without arbitration* the

formatted data to the external communication interface," as recited by independent claims 9 and 13.

Further, in response to arguments presented by Appellants, the Examiner asserted that Krontz teaches the "VCD to redirect the data to the operating system and received by the operating system without the arbitrator." Final Office Action, page 14. This assertion is not correct. The Appellants note that the Examiner has purposefully cited passages of the Krontz reference that do not mention arbitration. As set forth above, however, the system described in Krontz *does* perform arbitration to determine which device gets access to a shared resource. Moreover, the problem solved by Krontz – sharing a resource among competing devices – *requires* some form of arbitration to determine which device gets access to the resource. Otherwise, chaos would result.

For at least these reasons, it is clear that Krontz does not contain each and every element set forth in independent claims 1, 9, and 13. For at least these reasons, Krontz fails to anticipate independent claims 1, 9, and 13, as well as the claims dependent thereon. Accordingly, the Appellants request reversal of the rejection of claims 1, 2, 4, 8, 9, 11-14, and 17-20 under Section 102 and allowance of those claims.

3. ***Claims 8, 12 and 17***

Dependent claims 8 and 12 recite a remote server management controller "wherein the external communication interface is an Ethernet interface." Similarly, claim 17 recites a method for remotely retrieving data comprising the act of enabling an Ethernet interface to receive the request for OS information." In rejecting these claims based on Krontz, the Examiner alleges that Krontz discloses an Ethernet interface:

> As per claim 8, Krontz teaches the remote server management controller of claim 1, wherein the external communication interface is an Ethernet interface. (column 9 lines 49-56) (column 10 lines 44-47) (Fig. 1a element 149) (Column 11 lines 52-59)
>
> Final Office Action, page 5.

Contrary to the Examiner's assertions, the fact is that Krontz does not disclose an Ethernet interface. The portions of Krontz cited by the Examiner are set forth below:

> Also attached to the EISA/ISA bus is a resource device, which in the preferred embodiment is the low cost, industry standard modem 149. Preferably, the industry standard modem 149 is a Hayes compatible modem. The modem 149, in the form of a modem card in the EISA/ISA slot or a UART device, receives serial data from a remote computer and communicates the serial data to the UART 145 of the general I/O device 144.
>
> • • •
>
> The virtual communication port 200, along with the SMI arbitration software disclosed below, enables the modem 149 to be shared by applications on both the operating system and the remote console software.
>
> • • •
>
> The arbitrator then claims the communication port 145 from the remote console application and forwards accesses received by the virtual port to the communication port 145 provided certain conditions are present. These are: if the operating system application is accessing the modem resource and if the communication port, or UART

> 145, is idle, indicating that the remote console application is not using the communication port, or UART 145.
>
> Krontz, col. 9, lines 49-56; col. 10, lines 44-47; col.11, lines 52-59.

The element 149 in Fig. 1a that the Examiner refers to as an Ethernet interface is in fact a modem. As seen from these passages, the Examiner has apparently confused either a UART interface or a modem with an Ethernet port. The fact is that Krontz does not disclose an Ethernet interface at all. Accordingly, the Examiner's rejection of claims 8, 12 and 17 is erroneous and should be reversed.

4. ***Claim 18***

Dependent claim 18 recites a method comprising "the act of initiating an out-of-band management communication session." In rejecting the claim, the Examiner cites the following passage of the Krontz reference:

> The virtual communication port 200, along with the SMI arbitration software disclosed below, enables the modem 149 to be shared by applications on both the operating system and the remote console software. The hardware of the virtual communication port 200 emulates the registers of a Universal Asynchronous Receiver/Transmitter (UART) located within the general I/O device 144 or within an EISA/ISA slot, while the SMI handler for the virtual communication port 200 acts as an arbitrator to decide when accesses to the virtual communication port 200 should be forwarded to the UART device 145 in the general I/O device 144 or within an EISA/ISA slot. The UART bridges the data transmission between the modem 149 and the processor 50. Originally designed as an intelligent device for serial interfacing, the UART transmits serialized data over a serial bus such as an RS-232 communications link. The UART also receives serial data, converts it to parallel form, and sends the parallel data to the processor 50. Access to the UART is

typically gained through a personal computer system's I/O ports, typically ports COM1, COM2, COM3 and COM4.

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Data written to or read from each of these registers has a standard meaning, which is well known to the art. During boot up, the operating system looks for the presence of a serial communication port, or COM port, by reading and writing to the register of the industry standard UART device 145. To ensure that the modem is shared in a transparent manner between the operating system software and the remote console software, the virtual communication port 200 intercepts I/O accesses on the PCI bus directed at the UART on the general I/O device 144 or within an EISA/ISA slot. The virtual communication port 200 then performs a low-level emulation of the registers of the UART device 145 and under certain conditions, requests the assistance of the SMI virtual communication port handler through a system management interrupt. As discussed below, the combination of the virtual communication device 200 and the SMI software provides a robust and transparent modem sharing between operating system software applications and the remote console software.

Krontz, col. 10, lines 44-64; col. 11, lines 25-45.

Nowhere in these passages is an out-of-band management communication session taught, suggested or illustrated. Indeed, the passages of Krontz cited by the Examiner are completely irrelevant to the claimed subject matter, referring only to the capability of Krontz to facilitate the sharing of a modem by one or more devices, not the remote management of a computer system. Accordingly, the rejection of claim 18 under Section 102 based on Krontz is erroneous and should be reversed.

C. **Ground of Rejection No. 3:**

The Examiner rejected claims 3, 5, 15 and 21-23 under 35 U.S.C. § 103(a) as being rendered obvious by the Krontz reference in view of the Britt reference. The Appellants respectfully traverse this rejection.

1. **Judicial precedent has clearly established a legal standard for a *prima facie* obviousness rejection.**

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes all of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

2. ***Claims 3, 5, 15 and 21-23***

Claims 3, 5 and 21 depend from independent claim 1. Claim 22 depends from independent claim 9. Claims 15 and 23 depend from independent claim 13. The Appellants respectfully submit that claims 3, 5, 15 and 21-23 are allowable based on these dependencies, because the Britt reference does not cure the deficiencies regarding the Krontz reference, described above. Specifically, Britt does not disclose a VCD that includes the limitations discussed above with respect to the rejection of

independent claims 1, 9 and 13 under Section 102. For at least these reasons, claims 3, 5, 15 and 21-23 are believed to be allowable over the cited references taken alone or in combination with each other. Thus, the Appellants respectfully request reversal of the rejection of claims 3, 5, 15 and 21-23 under Section 103.

D. **Ground of Rejection No. 4:**

Claims 6, 7 and 16 were rejected under 35 U.S.C. § 103(a) as being rendered obvious by the Krontz reference in view of the Ito reference. The Appellants respectfully traverse this rejection.

Claims 6 and 7 depend from independent claim 1, and claim 16 depends from independent claim 13. The Appellants respectfully submit that claims 6, 7 and 16 are allowable based on these dependencies, because Ito does not cure the deficiencies regarding Krontz, which are described above. Specifically, Ito does not disclose a VCD that includes the limitations discussed above with respect to the rejection of independent claims 1, 9 and 13 under Section 102. For at least these reasons, claims 6, 7 and 16 are believed to be allowable over the cited references taken alone or in combination with each other. Thus, the Appellants respectfully request reversal of the rejection of claims 6, 7 and 16 under Section 103.

Conclusion

Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: December 21, 2006

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8. **APPENDIX OF CLAIMS ON APPEAL**

Listing of Claims:

1. A remote server management controller, comprising:

an external communication interface adapted to receive data from a remote user;

an input/output processor (IOP) adapted to:

receive data from the external communication interface; and

transmit data corresponding to the data received from the external communication interface to an operating system (OS) of a managed server; and

a virtual communication device (VCD) interface adapted to:

intercept data received from the OS, the VCD interface comprising a pre-defined standard communication interface, the data received from the OS being intended for a specific communication interface, and to redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface.

2. The remote server management controller of claim 1, wherein the specific communication interface is a UART interface of the managed server.

3. The remote server management controller of claim 1, wherein the specific communication interface is a USB host controller of the managed server.

4. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a UART interface.

5. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a USB interface.

6. The remote server management controller of claim 1, wherein the specific communication interface is a 1394 interface of the managed server.

7. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a 1394 interface.

8. The remote server management controller of claim 1, wherein the external communication interface is an Ethernet interface.

9. A remote server management controller, comprising:

an input/output processor (IOP) adapted to monitor interrupt data transmitted from a super I/O (SIO) to a southbridge, to alter the interrupt data

transmitted from the SIO based on input received from an external user via an external communication interface and to transmit the altered interrupt data to a managed server; and

a virtual communication device (VCD) that comprises a predefined standard communication interface, the VCD being adapted to:

intercept responsive data intended to be transmitted to the SIO in response to the altered interrupt data, the responsive data being in a format that is not compatible with the first communication protocol; and

prevent the responsive data from reaching the SIO;

format the responsive data for transmission; and

redirect without arbitration the formatted data to the external communication interface.

11. The remote server management controller of claim 9 wherein the input received from the external user is adapted to emulate an interrupt generated by a device in the managed server.

12. The remote server management controller of claim 9 wherein the external communication interface is an Ethernet interface.

13. A method of remotely retrieving data from an operating system (OS), the method comprising the acts of:

receiving a request for OS information from a remote user

transmitting the request for OS information to the OS via a virtual communication device (VCD) interface comprising a pre-defined standard communication interface;

receiving, via the VCD interface, data responsive to the act of transmitting the request to the OS, the data being intended for a specific communication interface;

formatting the responsive data for transmission; and

redirecting without arbitration the formatted data to the external communication.

14. The method of claim 13 wherein the specific communication interface is a UART interface.

15. The method of claim 13 wherein the specific communication interface is a USB interface.

16. The method of claim 13 wherein the specific communication interface is a 1394 interface.

17. The method of claim 13 further comprising the act of enabling an Ethernet interface to receive the request for OS information.

18. The method of claim 13 further comprising the act of initiating an out-of-band management communication session.

19. The method of claim 13 further comprising the act of enabling a VCD to transmit the request for OS information to the OS.

20. The method of claim 13 wherein the recited acts are performed in the recited order.

21. The remote server management controller of claim 1, wherein the pre-defined communication interface comprises a USB interface.

22. The remote server management controller of claim 9, wherein the pre-defined standard communication interface comprises a USB interface.

23. (Currently amended) The method of claim 13, wherein the pre-defined standard communication interface comprises a USB interface.

9. EVIDENCE APPENDIX

None.

10. **RELATED PROCEEDINGS APPENDIX**

None.